

### **REMARKS**

The present application has been reviewed in light of the Office Action mailed February 5, 2009. Claims 1-11 and 29-31 are currently pending, with claims 12-28 having been withdrawn. Applicant respectfully submits that claims 1-11 and 29-31 are allowable over the references of record as presented herein.

The Examiner has rejected claims 1-4, 8, and 29-30 under 35 U.S.C. §103(a) as being obvious over U.S. Patent Application Publication No. 2003/0001141 to Sun et al. ("Sun") in view of U.S. Patent No. 6,331,265 to Dupire et al. ("Dupire"); rejected claim 5 under 35 U.S.C. §103(a) as being obvious over Sun in view of Dupire and further in view of Wu et al. (Macromolecules 2003, 36, 6286-6288) ("Wu"); rejected claims 6-7 under 35 U.S.C. §103(a) as being obvious over Sun in view of Dupire and further in view of U.S. Patent No. 6,531,513 to Haddon et al. ("Haddon"); rejected claim 9 under 35 U.S.C. §103(a) as being obvious over Sun in view of Dupire and further in view of Ruan et al. (Polymer, 2003, 44, 5643-5654) ("Ruan"); and rejected claims 10-11 and 30-31 under 35 U.S.C. §103(a) as being obvious over Sun in view of Dupire and further in view of U.S. Patent Application Publication No. 20020161096 to Loontjens et al. ("Loontjens").

Reconsideration and allowance of the pending claims is respectfully requested in view of the following remarks.

With respect to the rejection of claims 1-4, 8, and 29-30 as obvious over Sun in view of Dupire, while Sun discloses the use of aromatic amines as electron donors to dissolve nanotubes, nowhere does Sun disclose the functionalization of the nanotubes as recited in claim 1, nor the

nanotubes recited in the method of claim 12 (claims 29-30 depend from claim 12 and incorporate all its limitations therein).

In fact, and to the contrary, Sun expresses a preference for nanotubes that are not functionalized, expressly noting as follows at paragraph 81:

Although dissolution of carbon nanotubes and study of their properties in solution has been a challenge for chemists, the present invention provides an improved way for dissolving and/or dispersing nanotube materials without the previously required cutting and chemical functionalization of carbon nanotubes, or attachment to polymers with solubilizing features.

Clearly, Sun contemplates processes other than functionalization of nanotubes for their inclusion/dissolution in other materials. Accordingly, Sun teaches away from the recited functionalized nanotubes.

Dupire fails to remedy the deficiencies of Sun, no matter how these references may be combined. Dupire provides a method for producing reinforced polymers, which includes introducing nanotubes into a polymer to provide a mixture of the polymer and nanotubes, stretching the mixture at or above the melting temperature ( $T_m$ ) of the polymer to orient the nanotubes, and stretching the mixture in the solid state to further orient the nanotubes. Nowhere is there any disclosure in Dupire of modified carbon nanotube that have been functionalized with at least one modifier such as alkenes and amines as recited in claim 1, and the methods utilizing such functionalized nanotubes as recited in claim 12 (again, claims 29-30 depend from claim 12 and incorporate all its limitations therein).

One skilled in the art reviewing Sun and Dupire would not look to combine the two references to arrive at the recited compositions and methods, especially as Sun explicitly states its methods may be utilized instead of functionalizing the nanotubes. Thus, it is respectfully

submitted that independent claims 1 and 12 are patentable over Sun and Dupire, no matter how these references may be combined, and that dependent claims 2-4 and 8, which depend from claim 1 and incorporate all its limitations therein, and claims 29-30, which depend from claim 12 and incorporate all its limitations therein, are similarly patentable over Sun and Dupire.

Claim 5 has been rejected as unpatentable over Sun and Dupire in view of Wu. Claim 5 depends from claim 1 and incorporates all its limitations therein. In addition to the deficiencies noted above with respect to Sun and Dupire for claim 1, it is respectfully submitted that Wu is not a proper reference under 35 U.S.C. §102(e) since the claimed subject matter was conceived prior to the filing date of Wu, with diligence in the preparation and filing of the instant application. In support of this, applicants are submitting herewith affidavits under 37 C.F.R. § 1.131 from each of the named inventors of the instant application, demonstrating conception prior to Wu and diligence in the preparation and filing of the instant application. It is respectfully submitted that these declarations are sufficient to overcome the Wu reference.

Therefore, since Wu cannot be used as a reference, it is respectfully submitted that none of the cited references disclose or suggest the nanocomposites of claim 5.

With respect to claims 6 and 7, both these claims depend from claim 1 and incorporate all its limitations therein. For the reasons noted above with respect to claim 1, neither Sun nor Dupire render claim 1 obvious. As to claims 6 and 7, Haddon fails to remedy the deficiencies of Sun and Dupire, no matter how these references may be combined. While Haddon discloses methods for solubilizing nanotubes in organic solutions, which includes attaching an aliphatic carbon chain thereto, nowhere does Haddon disclose or suggest a nanocomposite including about 70 wt % to about 99.99 wt % of at least one polyolefin as recited in claim 1.

Here, the Examiner has utilized applicants' own disclosure to arrive at the present rejection, and has thus utilized impermissible hindsight to reject the claims. Thus, reconsideration and withdrawal of the rejection of claims 6 and 7 is respectfully requested.

Claim 9 has been rejected as unpatentable over Sun and Dupire in view of Ruan. Claim 9 depends from claim 1 and incorporates all its limitations therein. In addition to the deficiencies noted above with respect to Sun and Dupire for claim 1, it is respectfully submitted that Ruan is not a proper reference under 35 U.S.C. §102(e) since the claimed subject matter was conceived prior to the filing date of Ruan, with diligence in the preparation and filing of the instant application. In support of this, applicants are submitting herewith affidavits under 37 C.F.R. § 1.131 from each of the named inventors of the instant application, demonstrating conception prior to Ruan and diligence in the preparation and filing of the instant application. It is respectfully submitted that these declarations are sufficient to overcome the Ruan reference.

Therefore, since Ruan cannot be used as a reference, it is respectfully submitted that none of the cited references disclose the nanocomposites of claim 9 and withdrawal of this rejection is respectfully requested.

As to the rejection of claims 10-11 and 30-31 as obvious over Sun and Dupire in view of Loontjens, claims 10-11 depend from claim 1 and incorporate all its limitations therein, and claims 30-31 depend from claim 12 and incorporate all its limitations therein. As noted above with respect to the rejection of claims 1-4, 8 and 29-30, neither Sun nor Dupire render obvious claim 1 or 12, nor the claims depending therefrom. Loontjens fails to remedy the deficiencies of these references with respect to claims 10-11 and 30-31. As noted by the Examiner, neither Sun nor Dupire disclose a film. While Loontjens discloses extruded moldings including polyolefins

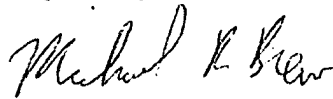
and clay, and that these extruded materials may be formed into films, nowhere does Loontjens disclose the functionalized nanotubes recited in the pending claims.

Thus, once again, the Examiner has utilized applicants' own disclosure and impermissible hindsight to arrive at the present rejection. Thus, reconsideration and withdrawal of the rejection of claims 10-11 and 30-31 is respectfully requested.

Should the Examiner have any questions concerning this Amendment, or feel that an interview would be helpful in resolving any outstanding matters, the Examiner is invited to contact Applicants' undersigned attorney at his convenience.

Early and favorable action on the merits is earnestly solicited.

Respectfully submitted,



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